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PUMICE, PUMICITE, AND VOLCANIC CINDERS IN CALIFORNIA

The annual production of pumice and pumicite in California has increased from a few tens of tons in 1909 to 88,825 tons in 1955, the second highest output among the states. The mining of volcanic cinders in California was started about 1916, and by 1955 the annual production of volcanic cinders had risen to 708,481 short tons.

Most of the pumice and volcanic cinders output for California has come from deposits in the following areas: (1) Glass Mountain area, eastern Siskiyou County, (2) Coso Range area, western Inyo County, (3) Benton and Bishop-Laws areas, southern Mono County and northern Inyo County,(4) Napa area, northeastern Napa County, (5) Mono Craters area, western Mono County, and the (6) pumicite output from deposits near Friant, southern Madera County.

The pumice mined in California is used mostly as aggregate in the manufacture of concrete building blocks, and as an abrasive. Volcanic cinders are used principally as ballast in railroad and highway construction and maintenance, and secondarily as stucco and concrete aggregate. Although some of the pumicite mined in California is used in the manufacture of concrete and as an abrasive, the principal usage is as a pesticide carrier for agricultural sprays. All of these materials are consumed in large quantities within the State, but substantial tonnages of pumicite are shipped to out-of-state markets.

Pumice is a very cellular volcanic glass. The cells are spherical, tubular,or irregular in shape. Most pumice is pale gray to white in color. Crystals of quartz, feldspar, biotite and hornblende are locally present as phenocrysts. Pumice occurs in fragments ranging in size from 1/8-inch to large masses as much as 10 feet across.

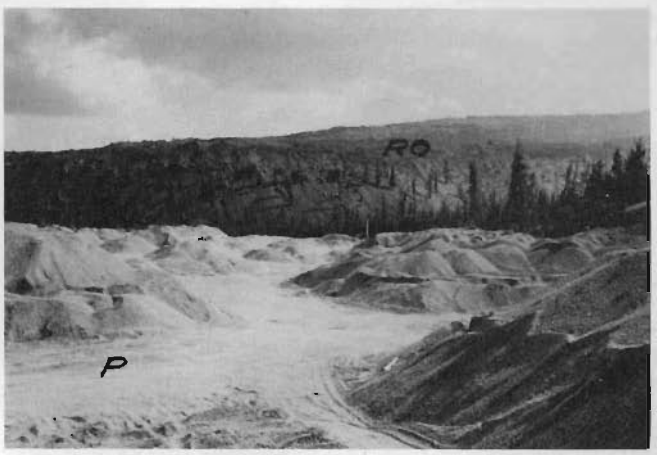
Pumicite, also known as volcanic ash, consists of finely divided, angular glass particles, less than 1/8 inch in diameter.

Volcanic cinders (scoria) resemble clinkers and consist of small crystals of plagioclase and pyroxene enclosed in a mesh of still smaller crystals of these minerals and subordinate dark-colored volcanic glass.

General Geology:

Pumice, pumicite, and volcanic cinders commonly occur together and exist in California in regions of Tertiary and Recent volcanism which cover extensive parts of the state. The pumice and pumicite deposits that exist today are relatively recent in age because, with advancing age, the glassy rocks devitrify and most surficial deposits are eroded away.

Pumice rarely forms separate rock masses, but generally occurs in fragments admixed with mineral grains and other rock fragments in varying proportions. Masses of pure pumice, however, are found as tops of flows and domes of obsidian. Material that consists largely of angular pumice fragments, ranging up to 6 inches in diameter and in a matrix



Fouch pumice pit, Glass Mountain area, eastern Siskiyou County, California. Pumice is mined from a mantle-like layer of loosely consolidated pumice tuff-breccia (P) which covers all older volcanic rocks, but which is itself overlain locally by a flow of rhyolite obsidian (RO). Pumice for scouring bricks is obtained from the top of the rhyolite obsidian flow, and pumice for aggregate purposes from the pumice tuff-breccia. View east.